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EXAMINER
ODOM, CURTIS B

ART UNIT	PAPER NUMBER
2634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/528,678	Applicant(s) CHAN ET AL.	
	Examiner Curtis B. Odom	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 10, 17-23, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Ghosh (U.S. Patent No. 6, 011, 813).

Regarding claim 1, Ghosh discloses an iterative equalizer (Fig. 2) for a data communication system for recovering received data transmitted over a data channel comprising:

a first filter (Fig. 2, block 210, column 5, lines 43-51) for filtering a received data according to first filter parameters to generate first-filtered data;

a combiner (Fig. 2, block 220, column 5, lines 51-52) for modifying the first-filtered data with second-filtered data to generated modified data;

a decision device (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) for generating modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

a second filter (Fig. 2, block 240, column 5, lines 43-51) for filtering tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51).

Regarding claim 2, which inherits the limitations of claim 1, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

Regarding claim 3, which inherits the limitations of claim 1, Ghosh discloses the received data is sampled (column 9, lines 13-28), but does not disclose the received data is sampled at a rate higher than a symbol rate associated with the received data. However, sampling rates are chosen to obtain an accurate representation of a signal. Oversampling reduces the effects of aliasing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a sampling rate higher than the symbol rate could have been chosen to obtain a more accurate representation of the signal at the receiver and reduce the effects of aliasing. Thus, sampling at a rate higher than the symbol rate does not constitute patentability.

Regarding claim 4, which inherits the limitations of claim 1, Ghosh discloses the received data comprises symbol data (column 5, lines 47-51).

Regarding claim 5, which inherits the limitations of claim 1, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6) according to channel parameters that are re-estimated at each iteration based on the received data (Fig. 4, column 8, lines 48-67 and column 9, lines 1-12).

Regarding claim 6, which inherits the limitations of claim 1, Ghosh discloses the received data is encoded (column 4, lines 62-66) and the decision device comprises a decoder (Fig. 1, block 190, column 6, 5, lines 40-42). Ghosh does not disclose using error-correction coding or an error correction decoder and error-correction encoder for the encoding the tentative decisions. However, it would have been obvious to one skilled in the art at the time the invention was made that the encoder and decoder of Ghosh could have been modified to use error correction encoding and decoding and error correction encoding for the tentative decisions. Error correction encoding and decoding detects and corrects errors in transmitted data. This improves data reliability and data transmission rates in the presence of noise and interference.

Regarding claim 7, which inherits the limitations of claim 1, Ghosh discloses the first and second filters comprise filter types selected from the group of filter types consisting of: linear, non-linear, time-variant, time-invariant, IIR, and FIR filters (column 5, lines 53-65).

Regarding claim 10, which inherits the limitations of claim 1, Ghosh discloses the first filter, combiner, decision device, and second filter are distributed among a data channel transmitter and receiver (Fig. 1, column 4, lines 52-53).

Regarding claim 17, Ghosh discloses a method for recovering received data transmitted over a data channel in a data communication system comprising iteratively:

first-filtering (Fig. 2, block 210, column 5, lines 43-51) received data according to first filter parameters to generate first-filtered data;

modifying (Fig. 2, block 220, column 5, lines 51-52) the first-filtered data with second-filtered data to generated modified data;

generating (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

second-filtering (Fig. 2, block 240, column 5, lines 43-51) tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51).

Regarding claim 18, which inherits the limitations of claim 17, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

Regarding claim 19, which inherits the limitations of claim 17, Ghosh discloses the received data is sampled (column 9, lines 13-28), but does not disclose the received data is sampled at a rate higher than a symbol rate associated with the received data. However, sampling rates are chosen to obtain an accurate representation of a signal. Oversampling reduces the effects of aliasing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a sampling rate higher than the symbol rate could have been chosen to obtain a more accurate representation of the signal at the receiver and reduce the effects of aliasing. Thus, sampling at a rate higher than the symbol rate does not constitute patentability.

Regarding claim 20, which inherits the limitations of claim 17, Ghosh discloses the received data comprises symbol data (column 5, lines 47-51).

Regarding claim 21, which inherits the limitations of claim 17, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6) according to channel parameters that are re-estimated at each iteration based on the received data (Fig. 4, column 8, lines 48-67 and column 9, lines 1-12).

Regarding claim 22, which inherits the limitations of claim 17, Ghosh discloses the received data is encoded (column 4, lines 62-66) and the decision device comprises a decoder (Fig. 1, block 190, column 6, 5, lines 40-42). Ghosh does not disclose using error-correction coding or an error correction decoder and error-correction encoder for the encoding the tentative decisions. However, it would have been obvious to one skilled in the art at the time the invention was made that the encoder and decoder of Ghosh could have been modified to use error correction encoding and decoding and error correction encoding for the tentative decisions. Error correction encoding and decoding detects and corrects errors in transmitted data. This improves data reliability and data transmission in the presence of noise and interference.

Regarding claim 23, which inherits the limitations of claim 17, Ghosh discloses the first and second filters comprise filter types selected from the group of filter types consisting of: linear, non-linear, time-variant, time-invariant, IIR, and FIR filters (column 5, lines 53-65).

Regarding claim 26, which inherits the limitations of claim 17, Ghosh discloses the first filter, combiner, decision device, and second filter are distributed among a data channel transmitter and receiver (Fig. 1, column 4, lines 52-53).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 11, 12, 15, 16, 27, 28, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghosh (U.S. Patent No. 6, 011, 813).

Regarding claim 11, Ghosh discloses an iterative equalizer (Fig. 2) for a data communication system for recovering received data transmitted over a data channel having channel parameters comprising:

a first filter (Fig. 2, block 210, column 5, lines 43-51) for filtering a received data according to first filter parameters to generate first-filtered data;

a combiner (Fig. 2, block 220, column 5, lines 51-52) for modifying the first-filtered data with second-filtered data to generated modified data;

a decision device (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) for generating modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

a second filter (Fig. 2, block 240, column 5, lines 43-51) for filtering tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51) and wherein the received data is encoded (column 4, lines 62-66) and the decision device comprises a decoder (Fig. 1, block 190, column 6, 5, lines 40-42).

Ghosh does not dislcose using error-correction coding or an error correction decoder and error-correction encoder for the encoding the tentative decisions.

However, it would have been obvious to one skilled in the art at the time the invention was made that the encoder and decoder of Ghosh could have been modified to use error correction encoding and decoding and error correction encoding for the tentative decisions. Error correction encoding and decoding detects and corrects errors in transmitted data. This improves data reliability and data transmission rates in the presence of noise and interference.

Regarding claim 12, which inherits the limitations of claim 11, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

Regarding claim 15, Ghosh discloses an iterative equalizer (Fig. 2) for a data communication system for recovering received data transmitted over a data channel comprising:

a first filter (Fig. 2, block 210, column 5, lines 43-51) for filtering a received data according to first filter parameters to generate first-filtered data;

a combiner (Fig. 2, block 220, column 5, lines 51-52) for modifying the first-filtered data with second-filtered data to generated modified data;

a decision device (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) for generating modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

a second filter (Fig. 2, block 240, column 5, lines 43-51) for filtering tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51) and wherein the received data is sampled (column 9, lines 13-28).

Ghosh does not disclose the received data is sampled at a rate higher than a symbol rate associated with the received data. However, sampling rates are chosen to obtain an accurate representation of a signal. Oversampling reduces the effects of aliasing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a sampling rate higher than the symbol rate could have been chosen to obtain a more accurate representation of the signal at the receiver and reduce the effects of aliasing. Thus, sampling at a rate higher than the symbol rate does not constitute patentability.

Regarding claim 16, which inherits the limitations of claim 15, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

Regarding claim 27, Ghosh discloses a method for recovering received data transmitted over a data channel having channel parameters, in a data communication system, comprising iteratively:

first-filtering (Fig. 2, block 210, column 5, lines 43-51) received data according to first filter parameters to generate first-filtered data;

modifying (Fig. 2, block 220, column 5, lines 51-52) the first-filtered data with second-filtered data to generated modified data;

generating (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

second-filtering (Fig. 2, block 240, column 5, lines 43-51) tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51) and wherein the received data is encoded (column 4, lines 62-66) and generating the modified data comprises decoding(Fig. 1, block 190, column 6, 5, lines 40-42).

Ghosh does not dislcose using error-correction coding or error correction decoding and error-correction encoding the tentative decisions from a previous iteration.

However, it would have been obvious to one skilled in the art at the time the invention was made that the encoding and decoding of Ghosh could have been modified to use error correction encoding and decoding and error correction encoding for the tentative decisions. Error correction encoding and decoding detects and corrects errors in transmitted data. This improves data reliability and data transmission rates in the presence of noise and interference.

Regarding claim 28, which inherits the limitations of claim 27, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

Regarding claim 31, Ghosh discloses a method for recovering received data transmitted over a data channel having channel parameters, in a data communication system, comprising iteratively:

first-filtering (Fig. 2, block 210, column 5, lines 43-51) received data according to first filter parameters to generate first-filtered data;

modifying (Fig. 2, block 220, column 5, lines 51-52) the first-filtered data with second-filtered data to generated modified data;

generating (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

second-filtering (Fig. 2, block 240, column 5, lines 43-51) tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51) and wherein the received data is sampled (column 9, lines 13-28).

Ghosh does not disclose the received data is sampled at a rate higher than a symbol rate associated with the received data. However, sampling rates are chosen to obtain an accurate representation of a signal. Oversampling reduces the effects of aliasing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a

sampling rate higher than the symbol rate could have been chosen to obtain a more accurate representation of the signal at the receiver and reduce the effects of aliasing. Thus, sampling at a rate higher than the symbol rate does not constitute patentability.

Regarding claim 32, which inherits the limitations of claim 31, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

5. Claims 8, 13, 14, 24, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghosh (U.S. Patent No. 6, 011, 813) in view of Meehan (U.S. Patent No. 6, 115, 419).

Regarding claim 8, which inherits the limitations of claim 1, Ghosh discloses all the limitations of claim 8 (see rejection of claim 1), except the received data comprises a plurality of received signals received over a plurality of data channels, and wherein the equalizer comprises a plurality of first filters corresponding to the plurality of channels.

However, Meehan discloses an equalizer (Fig. 1) wherein the received data comprises a plurality of received signals (column 2, lines 9-34) received over a plurality of data channels, and wherein the equalizer comprises a plurality of first filters (Fig. 1, blocks 232, 228, 248, and 254) corresponding to the plurality of channels. Therefore, it would have been obvious to one of ordinary skill in the art to modify the receiver and equalizer of Ghosh with the teachings of Meehan in order to improve receiver diversity which would allow the receiver to be implemented into multi-user communication systems. The plurality of filters would reduce multi-user interference which allows for an increase in system capacity and allows signal decoding to be carried out efficiently and accurately.

Regarding claim 13, Ghosh discloses an iterative equalizer (Fig. 2) for a data communication system for recovering received data transmitted over a data channel comprising:

a first filter (Fig. 2, block 210, column 5, lines 43-51) for filtering a received data according to first filter parameters to generate first-filtered data;

a combiner (Fig. 2, block 220, column 5, lines 51-52) for modifying the first-filtered data with second-filtered data to generated modified data;

a decision device (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) for generating modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

a second filter (Fig. 2, block 240, column 5, lines 43-51) for filtering tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51).

Ghosh does not disclose the data is transmitted over a plurality of data channels wherein the received data comprises a plurality of received signals received over a plurality of data channels, and wherein the equalizer further comprises a plurality of first filters corresponding to the plurality of channels.

However, Meehan discloses an equalizer (Fig. 1) wherein the received data comprises a plurality of received signals (column 2, lines 9-34) received over a plurality of data channels, and

wherein the equalizer comprises a plurality of first filters (Fig. 1, blocks 232, 228, 248, and 254) corresponding to the plurality of channels. Therefore, it would have been obvious to one of ordinary skill in the art to modify the receiver and equalizer of Ghosh with the teachings of Meehan in order to improve receiver diversity which would allow the receiver to be implemented into multi-user communication systems. The plurality of filters would reduce multi-user interference which allows for an increase in system capacity and allows signal decoding to be carried out efficiently and accurately.

Regarding claim 14, which inherits the limitations of claim 13, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

Regarding claim 24, which inherits the limitations of claim 17, Ghosh discloses all the limitations of claim 24 (see rejection of claim 17), except the received data comprises a plurality of received signals received over a plurality of data channels, and wherein the equalizer comprises a plurality of first filters corresponding to the plurality of channels.

However, Meehan discloses an equalizer (Fig. 1) wherein the received data comprises a plurality of received signals (column 2, lines 9-34) received over a plurality of data channels, and wherein the equalizer comprises a plurality of first filters (Fig. 1, blocks 232, 228, 248, and 254) corresponding to the plurality of channels. Therefore, it would have been obvious to one of ordinary skill in the art to modify the receiver and equalizer of Ghosh with the teachings of Meehan in order to improve receiver diversity which would allow the receiver to be implemented into multi-user communication systems. The plurality of filters would reduce multi-user interference which allows for an increase in system capacity and allows signal decoding to be carried out efficiently and accurately.

Regarding claim 29, Ghosh discloses a method for recovering received data transmitted over a data channel in a data communication system comprising iteratively:

first-filtering (Fig. 2, block 210, column 5, lines 43-51) received data according to first filter parameters to generate first-filtered data;

modifying (Fig. 2, block 220, column 5, lines 51-52) the first-filtered data with second-filtered data to generated modified data;

generating (Fig. 2, block 230, column 5, lines 66-67 and column 6, lines 1-3) modified tentative decisions based on the modified data, the modified tentative decisions being modified with respect to tentative decisions of a previous iteration (column 6, lines 4-6), wherein the decisions of the decision device are modified with each iteration in which the filter parameters are modified;

second-filtering (Fig. 2, block 240, column 5, lines 43-51) tentative decisions from a previous iteration according to second filter parameters to generate the second-filtered data;

wherein the first and second filter parameters are based on the received data (column 5, lines 45-51).

Ghosh does not disclose the data is transmitted over a plurality of data channels wherein the received data comprises a plurality of received signals received over a plurality of data channels, and further comprising first-filtering the received data at a plurality of first filters corresponding to the plurality of channels.

However, Meehan discloses an equalizer (Fig. 1) wherein the received data comprises a plurality of received signals (column 2, lines 9-34) received over a plurality of data channels, and further comprising first-filtering the received data at a plurality of first filters (Fig. 1, blocks 232,

228, 248, and 254) corresponding to the plurality of channels. Therefore, it would have been obvious to one of ordinary skill in the art to modify the method of Ghosh with the teachings of Meehan in order to improve receiver diversity which would allow the receiver to be implemented into multi-user communication systems. The plurality of filters would reduce multi-user interference which allows for an increase in system capacity and allows signal decoding to be carried out efficiently and accurately.

Regarding claim 30, which inherits the limitations of claim 29, Ghosh discloses the first and second filter parameters are modified at each iteration (column 6, lines 4-6).

6. Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghosh (U. S. Patent No. 6, 011, 813) in view of Agazzi (U.S. Patent No. 6, 236, 645).

Regarding claims 9 and 25, which inherits the limitations of claim 1 and 17, Ghosh discloses all the limitations of claim 9 and 25 (see previous rejection of claim 1 and 17) except the received data comprises combined data for a plurality of users, and wherein the equalizer further comprises a plurality of second filters for second-filtering the tentative decisions from a previous iteration corresponding to the plurality of users.

However, Agazzi discloses a received with an equalizer wherein the received data comprises combined data for a plurality of users (column 3, lines 1-11), and wherein the equalizer further comprises a plurality of second filters for second-filtering the tentative decisions from a previous iteration (Fig. 7, block 100, column 7, lines 35-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the equalizer and receiver of Ghosh with the teachings of Agazzi in order to improve receiver diversity which would allow the receiver to be implemented into multi-user

communication systems. The plurality of filters would reduce multi-user interference which allows for an increase in system capacity and allows signal decoding to be carried out efficiently and accurately.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wang et al. (U.S. Patent No. 5, 052, 000) discloses feedback equalizers utilizing error correction.

Lee et al. (U.S. Patent No. 5, 471, 504) discloses bilinear decision feedback equalizers.

Peterson et al. (U.S. Patent No. 5, 761, 237) discloses equalizers used to reduce multi-user interference.

Ariyavisitakul ("Joint Coding and Decision Feedback Equalization for Broadband Wireless Channels") discloses equalization using modified tentative decisions.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Curtis Odom
May 16, 2003

STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application